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Kym Moore



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of:

Date: July 25, 2006

Joseph W. FREEMAN et al.

Confirmation No: 7103

Serial No: 10/064,087

Group Art Unit: 2115

Filed: June 10, 2002

Examiner: Chun Cao

Title: DYNAMIC HARDFILE SIZE ALLOCATION TO SECURE DATA

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

(1) Real Party in Interest

The real party in interest is Lenovo Incorporated.

(2) Related Appeals and Interferences

There are no related appeals or interferences known to the Applicant.

(3) Status of Claims

Claims 1-6, 13-25 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,542,979 ("Eckardt") in view of U.S. Patent Application Publication No. 2002/0166059 ("Rickey").

Claims 26-27 and 29-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eckardt and Rickey in view of U.S. Patent Application Publication No. 2003/0163610 (“Steven”).

All of the foregoing claims are being appealed.

(4) Status of Amendments

There are no unentered amendments.

(5) Summary of Claimed Subject Matter

Independent claim 1 recites a method for access control of a hardfile in a computer system having an operating system. The method includes detecting a special boot condition during a pre-boot test of the computer system. Specification, page 6, line 14 – page 7, line 1. The method further includes, in response to detecting the special boot condition, adjusting a size of a partition of the hardfile to alter an operating system access configuration of the hardfile. Specification, page 6, line 20 – page 7, line 6.

Independent claim 13 recites a storage system for a computer system having an operating system and a pre-boot procedure. In particular, the storage system includes a hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile. Specification, page 8, lines 5-10; FIG. 2. The storage system further includes a hardfile controller coupled to the hardfile and responsive to a special boot condition detected by the pre-boot procedure. The hardfile controller is operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access to

only the first part of the hardfile in a second mode. Specification, page 8, lines 10-16; FIG. 2.

Independent claim 14 recites a storage system for a computer system having an operating system. The storage system includes a hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile. Specification, page 8, lines 5-10; FIG. 2. The storage system further includes a hardfile controller coupled to the hardfile and responsive to a special boot condition detected by a pre-boot procedure of the computer system. The hardfile controller is operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access to only the first part of the hardfile in a second mode. Specification, page 8, lines 10-16; FIG. 2.

Independent claim 15 a storage system controller for a hardfile of a computer system having an operating system and a pre-boot procedure. The hardfile is used for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile. Specification, page 8, lines 5-10; FIG. 2. The storage system controller comprises a hardfile controller coupled to the hardfile and responsive to a special boot condition detected by the pre-boot procedure. The hardfile controller is operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access by the operating system to only the first part of the hardfile in a second mode. Specification, page 8, lines 10-16; FIG. 2.

Independent claim 16 recites a storage system controller for a hardfile of a computer system having an operating system. The hardfile is used for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile. Specification, page 8, lines 5-10; FIG. 2. The storage system controller comprises a hardfile controller coupled to the hardfile and responsive to a special boot condition detected by a pre-boot procedure of the computer system. The hardfile controller is operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access by the operating system to only the first part of the hardfile in a second mode. Specification, page 8, lines 10-16; FIG. 2.

Independent claim 17 recites a hardfile system for a computer system. The hardfile comprises a hardfile for non-volatile storage of a operating system and user data. Specification, page 8, lines 5-10; FIG. 2. The hardfile further comprises means, coupled to the computer system, for detecting a special boot condition during a pre-boot test of the computer system. Specification, page 6, line 13 – page 7 line 1. The hardfile further comprises means, coupled to the hardfile and to the detecting means, for adjusting a size of a partition of the hardfile to alter an operating system access configuration of the hardfile in response to detecting the special boot condition. Specification, page 8, lines 10-12; FIG. 2.

Independent claim 18 recites a hardfile storage system including a hardfile for non-volatile storage of an operating system for a computer system in a first part of the hardfile and for non-volatile storage of user data in a second part of the hardfile.

Specification, page 8, lines 5-10; FIG. 2. The hardfile storage system further includes means coupled to the hardfile for dynamically adjusting a size of a partition of the hardfile to permit operating system access to the hardfile in a first mode and a second mode, in which the first mode enables access to both the first part of the hardfile and the second part of the hardfile and the second mode enables access to only the first part of the hardfile. Specification, page 8, lines 13-16; FIG. 2.

Independent claim 19 recites a computer usable medium having computer readable program code means embodied therein for access control of a hardfile. Specification, page 4, line 21 – page 5, line 1. The hardfile is responsive to a hardfile controller included in a computer system having an operating system performing a pre-boot test. Specification, page 5, lines 5-7. The computer readable program code means in the computer usable medium includes computer readable program code means for causing the computer system to detect a special boot condition during the pre-boot test. Specification, page 6, lines 13-22. The computer readable program code means in the computer usable medium further includes computer readable program code means for causing the computer system to adjust a size of a partition of the hardfile to alter an operating system access configuration parameter of the hardfile in response to detection of the special boot condition. Specification, page 7, lines 2-6.

Independent claim 23 recites a computer readable medium containing program instructions for access control of a hard file in a computer system. The computer readable medium includes instructions for detecting a special boot condition during the pre-boot test. Specification, page 6, line 14 – page 7, line 1. The computer readable medium further includes instructions for, in response to detecting the special boot condition, adjusting a

size of a partition of the hardfile to alter an operating system access configuration of an access parameter of the hardfile. Specification, page 6, line 20 – page 7, line 6.

Independent claim 28 recites a method for controlling access of an operating system to data in a hard drive of a computer system. The method includes providing a computer system including a hard drive, in which the hard drive includes one or more of user data or software applications in a first portion of the hard drive. Specification, page 4, lines 21-23; page 8; lines 8-10. The method further includes initiating a power on self-test of the computer system. Specification, page 6, lines 13-14. The method further includes determining whether a pre-determined condition occurs to limit access to the one or more of user data or software applications in the first portion of the hard drive. Specification, page 6, line 20 – page 7, line 1. If the pre-determined condition occurs then the method further dynamically adjusts a size of a partition of the hard drive during the power on self-test to exclude access of the operating system to the one or more of user data or software applications in the first portion of the hard drive, otherwise the method provides the operating system full access to the one or more of user data or software applications in the first portion of the hard drive. Specification, page 7, lines 2-6; page 8; lines 13-14.

(6) Grounds of Rejection to be Reviewed on Appeal

1. Applicant requests review as to claims 1-6, 13-25 and 28 and their rejection under 35 U.S.C. § 103(a) as being unpatentable over Eckardt in view of Rickey.

2. Applicant requests review as to claims 26-27 and 29-30 and their rejection under 35 U.S.C. § 103(a) as being unpatentable over Eckardt and Rickey in view Steven.

(7) Argument

- 1. Claims 1-6, 13-25 and 28 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Eckardt in view of Rickey.**

(A) Claims 1-6 and 13-25

Claim 1 recites, in response to detecting a special boot condition, adjusting a size of a partition of a hardfile to alter an operating system access configuration of the hardfile.

A. Eckardt Fails To Disclose Adjusting a Size of a Partition of a Hardfile In Response To Detecting A Special Boot Condition

Eckardt discloses a supplemental driver that is stored outside of the master boot record of a disk drive, which supplemental driver is used to access a hidden disk partition (see Abstract). The Examiner recognizes that Eckardt fails to disclose adjusting a size of a partition of a hardfile in response to detecting a special boot condition. The Examiner, however, asserts that this limitation absent from Eckardt and recited in claim 1 is disclosed by Rickey.

B. Rickey Fails To Disclose Adjusting a Size of a Partition of a Hardfile In Response To Detecting A Special Boot Condition

Rickey discloses methods for protecting against viruses on partitionable media (see Abstract). In particular, Rickey discloses eliminating the need to execute boot sector code when booting from a hard drive. This is accomplished by moving the functionality of the hard drive boot sector program (the Master Boot Record (MBR)) into the system firmware BIOS (paragraphs 0017, 0020).

Rickey further discloses additional protection features that permit access to specified areas of a hard drive. Specifically, Rickey discloses writing a password into a nonvolatile memory, which password grants access to use of a SETMAX command that sets the maximum size of the hard drive. Accordingly, because areas of the hard drive that are outside of the location originally defined (at initialization) by the SETMAX command can only be accessed through use of the SETMAX password, the password-accessible area is relatively secure from viruses (paragraphs 0065, 0066).

Rickey, however, fails to disclose adjusting a size of a partition of a hardfile in response to detecting a boot condition during a pre-boot test of a computer system (emphasis added). Instead, as discussed above, Rickey discloses altering a SETMAX parameter in response to receiving a password (after a size of the hard drive has already be set – i.e., after initialization and not during a pre-boot test) (paragraph 0065). Consequently, Rickey fails to disclose adjusting a size of a partition of a hardfile in response to detecting a boot condition during a pre-boot test of a computer system, as required by claim 1.

C. The claim has limitations not taught by either reference

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Both Eckardt and Rickey fail to disclose adjusting a size of a partition of a hardfile in response to detecting a boot condition during a pre-boot test of a computer

system, as required by claim 1. Consequently, the combination of Eckardt and Rickey cannot render claim 1 obvious.

For at least these reasons, Applicant submits that claim 1, and the claims that depend therefrom, are allowable over Eckardt and Rickey.

D. Other Independent Claims

Claims 13-19, and 23 each incorporates limitations similar to those of claim 1. Claims 13-19, and 23 (and the claims that depend therefrom) are also allowable over Eckardt and Rickey for reasons corresponding to those set forth with respect to claim 1.

(B) Claim 28

Independent claim 28 incorporates limitation similar to those of claim 1. In addition to the reasons set forth above in connection with claim 1, claim 28, and the claims that depend therefrom, are further allowable over Eckardt and Rickey for the following reasons.

Claim 28 recites “dynamically adjusting a size of a partition of the hard drive *during* the power on self-test” to exclude access of an operating system to one or more of user data or software applications in a first portion of a hard drive.

Neither Eckardt nor Rickey discloses a power on self-test procedure. Thus, neither Eckardt nor Rickey discloses dynamically adjusting a size of a partition of a hard drive during a power on self-test, as required by claim 28.

2. Claims 26-27 and 29-30 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Eckardt and Rickey in view Steven.

(A) Claims 26-27 and 29-30

Claims 26 and 27 each incorporates the limitations of claim 1. Claims 29-30 each incorporates the limitations of claim 28.

Putting aside the issue of whether Steven discloses the particular limitations of claims 26-27 and 29-30. Steven (as with Eckardt and Rickey) fails to disclose adjusting a size of a partition of a hardfile in response to detecting a boot condition during a pre-boot test of a computer system, or dynamically adjusting a size of a partition of the hard drive *during* the power on self-test” to exclude access of an operating system to one or more of user data or software applications in a first portion of a hard drive.

Consequently, any combination of Eckardt, Rickey, and Steven cannot render claims 26-27 and 29-30 obvious.

Please charge any fee that may be necessary for the continued pendency of this application to Deposit Account No. 50-0563 (IBM Corporation).

Respectfully submitted,

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July 25, 2006

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Appendix of Claims

1. (Previously Presented) A method for access control of a hardfile in a computer system having an operating system, the method comprising:

detecting a special boot condition during a pre-boot test of the computer system; and

in response to detecting the special boot condition, adjusting a size of a partition of the hardfile to alter an operating system access configuration of the hardfile.
2. (Previously Presented) The method of claim 1, wherein adjusting a size of a partition of the hardfile dynamically sets a maximum accessible size of the hardfile.
3. (Previously Presented) The method of claim 1, wherein the hardfile is a hard drive.
4. (Previously Presented) The method of claim 1, wherein the operating system is stored on a first part of the hardfile and user data is stored on a second part of the hardfile, and wherein adjusting a size of a partition of the hardfile sets the hardfile access to exclude the second part of the hardfile from access by the operating system.
5. (Previously Presented) The method of claim 2, wherein the operating system is stored on a first part of the hardfile and user data is stored on a second part of the hardfile,

and wherein adjusting a size of a partition of the hardfile sets the hardfile maximum size to exclude the second part of the hardfile from access by the operating system.

6. (Previously Presented) The method of claim 4, wherein the special boot condition is a hardware tamper detect.

7-12. (Cancelled)

13. (Previously Presented) A storage system for a computer system having an operating system and a pre-boot procedure, comprising:

a hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile; and

a hardfile controller, coupled to the hardfile and responsive to a special boot condition detected by the pre-boot procedure, operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access to only the first part of the hardfile in a second mode.

14. (Previously Presented) A storage system for a computer system having an operating system, comprising:

a hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile; and

a hardfile controller, coupled to the hardfile and responsive to a special boot condition detected by a pre-boot procedure of the computer system, operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access to only the first part of the hardfile in a second mode.

15. (Previously Presented) A storage system controller for a hardfile of a computer system having an operating system and a pre-boot procedure, the hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile, comprising:

a hardfile controller, coupled to the hardfile and responsive to a special boot condition detected by the pre-boot procedure, operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access by the operating system to only the first part of the hardfile in a second mode.

16. (Previously Presented) A storage system controller for a hardfile of a computer system having an operating system, the hardfile for non-volatile storage of the operating system on a first part of the hardfile and a plurality of user data on a second part of the hardfile, comprising:

a hardfile controller, coupled to the hardfile and responsive to a special boot condition detected by a pre-boot procedure of the computer system, operable to dynamically reconfigure operating system access to the hardfile including adjusting a size of a partition of the hardfile to permit access to both the first part of the hardfile and the second part of the hardfile in a first mode and to permit access by the operating system to only the first part of the hardfile in a second mode.

17. (Previously Presented) A hardfile system for a computer system, comprising:

a hardfile for non-volatile storage of a operating system and user data;

means, coupled to the computer system, for detecting a special boot condition during a pre-boot test of the computer system; and

means, coupled to the hardfile and to the detecting means, for adjusting a size of a partition of the hardfile to alter an operating system access configuration of the hardfile in response to detecting the special boot condition.

18. (Previously Presented) A hardfile storage system, comprising:

a hardfile for non-volatile storage of an operating system for a computer system in a first part of the hardfile and for non-volatile storage of user data in a second part of the hardfile; and

means, coupled to the hardfile, for dynamically adjusting a size of a partition of the hardfile to permit operating system access to the hardfile in a first mode and a second mode, wherein the first mode enables access to both the first part of the hardfile and the

second part of the hardfile and the second mode enables access to only the first part of the hardfile.

19. (Previously Presented) A computer usable medium having computer readable program code means embodied therein for access control of a hardfile, responsive to a hardfile controller included in a computer system having an operating system performing a pre-boot test, the computer readable program code means in the computer usable medium comprising:

computer readable program code means for causing the computer system to detect a special boot condition during the pre-boot test; and

computer readable program code means for causing the computer system to adjust a size of a partition of the hardfile to alter an operating system access configuration parameter of the hardfile in response to detection of the special boot condition.

20. (Previously Presented) The computer usable medium of claim 19, wherein the special boot condition is a hardware tamper detect.

21. (Original) The computer usable medium of claim 19, wherein the hardfile is a hard disk.

22. (Original) The computer usable medium of claim 21, wherein the configuration parameter is a SETMAX value.

23. (Previously Presented) A computer readable medium containing program instructions for access control of a hard file in a computer system, the program instructions for:

detecting a special boot condition during the pre-boot test; and

in response to detecting the special boot condition, adjusting a size of a partition of the hardfile to alter an operating system access configuration of an access parameter of the hardfile.

24. (Previously Presented) The computer readable medium of claim 23, wherein the special boot condition is a hardware tamper detect.

25. (Original) The computer readable medium of claim 23, wherein the hardfile is a hard disk.

26. (Previously Presented) The method of claim 1, wherein adjusting a size of a partition of the hardfile includes adjusting a size of a Protected Area Run Time Interface Extension Services (PARTIES) partition.

27. (Previously Presented) The method of claim 26, further comprising using a SETMAX procedure to adjust the size of the PARTIES partition.

28. (Previously Presented) A method for controlling access of an operating system to data in a hard drive of a computer system, the method comprising:

providing a computer system including a hard drive, the hard drive including one or more of user data or software applications in a first portion of the hard drive;

initiating a power on self-test of the computer system;

determining whether a pre-determined condition occurs to limit access to the one or more of user data or software applications in the first portion of the hard drive; and

if the pre-determined condition occurs then dynamically adjusting a size of a partition of the hard drive during the power on self-test to exclude access of the operating system to the one or more of user data or software applications in the first portion of the hard drive;

otherwise providing the operating system full access to the one or more of user data or software applications in the first portion of the hard drive.

29. (Previously Presented) The method of claim 28, wherein dynamically adjusting a size of a partition includes adjusting a size of a Protected Area Run Time Interface Extension Services (PARTIES) partition.

30. (Previously Presented) The method of claim 29, wherein the hard drive is a ATAPI-4 compliant hard drive.